CLAIMS

We claim:

1. An acoustic tracking system useful for determining the location of a sound producing acoustical source from within a set of at least two user-defined locations, comprising:

(a) an array of microphones;

(b) a processor coupled to the array of microphones;

(c) a set of beamforming parameters calculated by the processor, each beamforming parameter within the set of beamforming parameters being associated with each user-defined location within the set of at least two user-defined locations;

(d) a set of modified signals calculated by the processor, each modified signal within the set of modified signals being determined by applying each beamforming parameter within the set of beamforming parameters to the sound received by the array of microphones, wherein one of the modified signals is a best modified signal; and

(e) a result location determined by the processor and contained within the set of at least two user-defined locations, the result location being the location associated with the best modified signal.

2. An acoustic tracking system of claim 1, wherein the user-defined locations are determined prior to a video conference.

3. An acoustic tracking system of claim 1, wherein the user-defined locations are determined at any time during a video conference.

4. An acoustic tracking system of claim 1, wherein the array of microphones includes at least three microphones.

5. An acoustic tracking system of claim 4, wherein the array of microphones is non-co-linear.

6. An acoustic tracking system of claim 1, wherein the best modified signal is determined as a function of signal strength and duration.

7. An acoustic tracking system of claim 1, wherein the result location is used to position a camera such that the camera focuses on the result location.

8. A camera tracking system of claim 1, wherein multiple cameras are used to frame each of the user-defined locations.

9. A camera tracking system of claim 1, wherein a PZT camera is used to frame each of the user-defined locations.

10. A camera tracking system capable of locating and framing an acoustical source producing a signal, comprising:

(a) an input device able to define a set of at least two defined locations where the acoustical source may be located;

(b) a camera capable of framing each of the defined locations;

(c) an array of microphones able to receive the signal from the acoustical source;

(d) a processor operably connected to the input device, the movable camera, and the array of microphones, the processor being able to calculate a set of beamforming parameters wherein each beamforming parameter is associated with a defined location from the set of defined locations, calculate a set of modified signals by applying the set of the beamforming parameters to the signal received by the array of microphones, identify a best modified signal from the set of modified signals, and instruct the camera to frame the location associated with the best modified signal.

11. A camera tracking system of claim 11, wherein the camera is a moveable camera.

12. A camera tracking system of claim 11, wherein the camera is a PTZ camera.

13. A camera tracking system of claim 11, wherein the best modified signal is determined as a function of signal strength and duration.

14. A method for identifying the location of an audio source comprising the steps of:

(a) defining at least two points in space where the audio source may be located;

(b) calculating beamforming parameters for each of the at least two points in space;

(c) receiving sound by a microphone array;

(d) applying each set of the beamforming parameters to the sound received by the microphones in the array;

(e) determining which set of beamforming parameters maximize the sum amplitude of the signals received by the microphone array; and

(f) identifying one of the at least two points in space associated with the set of beamforming parameters that maximize the sum amplitude of the microphone signals.

15. A method for locating and framing an acoustical source, comprising the steps of:

(a) defining at least two points in space where the acoustical source may be located;

(b) calculating beamforming parameters for each of the at least two points in space;

(c) receiving acoustical signals by a microphone array;

(d) applying each set of the beamforming parameters to the acoustical signal received by the microphones in the array to produce a set of modified signals;

(e) determining the best modified signal from the set of modified signals;

(f) identifying one of the at least two points in space associated with the set of beamforming parameters that produce the best modified signal; and

(g) directing at least one camera to frame the source of the best modified signal.

16. A method for locating and framing an acoustical source of claim 15, wherein multiple cameras are each framed to a defined location and activated by the processor when the acoustical source is determined to be at that defined location.